

Model DGA-410 Ashmeter



Real-Time Online Coal Analysis



DESCRIPTION

The Model DGA-410 Ashmeter is a registered nuclear gauging device for measuring ash weight percent of coal. The measuring portion of the device, which consists of a source and detector assembly, is normally mounted across a conveyor belt on existing belt structure. The detector is connected to an electronics enclosure housing an industrial computer which processes the detector signals and displays the measured results to the operator. The Ashmeter generates ash weight percent and weight/density measurements every three seconds making it useful in online process and control applications. It can easily control the ETI model HSG1 High Speed Sort Gate for separating process coal into different quality piles.

APPLICATIONS AND USES

Sorting

Real-time measurement of coal ash weight percent and a virtually unlimited flow capacity make the Ashmeter a valuable sorting instrument. Run of mine coal – especially within seams of highly variable composition - can be efficiently sorted into specific market products, thereby reducing good product waste and improving profit margins.

Blending

Use of the Ashmeter as the control element in either feed-forward or feed-back control topologies makes the Ashmeter a valuable tool for coal blending. Electronic control signals from the Ashmeter can be used to adjust feed rates from various coal sources thereby improving blend quality and efficiency.

Process Control

Use of the Ashmeter on the output of a prep plant allows for closed-loop feedback to control heavy media density in the coal circuit. Use of the Ashmeter on a plant bunker feed belt allows for boiler operation adjustments to reduce boiler fouling and slagging and can lead to improvements in long-term heat rate.

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DESIGN FEATURES

Rugged Belt Mounted Analyzer

- Assembly is dustproof and waterproof
- Assembly bolts onto existing belt structure without modification
- Minimizes installation time and cost
- Requires no routine maintenance

Source Holder/Detector

- Gamma sources are housed in a single shield
- Gamma rays are collimated into a fan beam to maximize coal interrogation zone (approximately 160 times that of other units)

Auto-Standardization

- Automatic software compensation for electronic drift, source decay, and temperature variations performed every three seconds
- Ensures system precision and accuracy

Detector Temperature Control

- Eliminates drift due to ambient temperature variations
- Ensures system precision and accuracy

Advanced Data Acquisition and Control

- Intuitive and easy to use operator interface
- Graphical Displays
- Automatic Report Generation
- Automated Calibration
- Manual and Automatic control of process control devices (sort gate, feeder, etc.)
- Analog outputs for connection to other process equipment
- Digital outputs for alarm or control

TECHNICAL SPECIFICATIONS

Performance

Accuracy	0.3-1.0 wt. % (typ) for washed or raw coals
Response Time	3 seconds (typ)

Operational Material

Material Top Size	0-6 in (0-152 mm) (typ), may accommodate 12 in (254 mm)
Material Depth	1-14 in (25-356 mm) depending on material density

System Inputs

Belt Running	A pair of voltage free contacts indicating that the belt is running
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System Outputs

Analog	Two (2) isolated 0-10 V or 4-20 mA analog outputs for reporting material ash wt%/weight
Digital	Eight (8) 12 V digital outputs (3 sorting, 5 general)

Environmental Conditions

Operating Temperature	Analyzer: -5°-120°F (-20-40°C) Enclosure: 40°-120°F (5-40°C)
Humidity	Analyzer: 0-100% Enclosure: 0-90%, non-condensing
Environment	Class II, Div.1 group F (G optionally available). All units are protected against dust and moisture (NEMA 4).

Electrical Requirements

Power Requirement	120 VAC, 60 Hz, 1 KVA
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Radiation Levels

Surface	1.0 mREM/hr maximum radiation dose rate at all points on the surface of the equipment except in the direct beam.
Vicinity	Less than 0.1 mREM/hr maximum radiation rate at all points outside 3 ft. of the source housing.

Shipping Weight

Weight	750 lbs (340 kg)
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Options

Remote Readout / High-speed Gate / Belt Speed Switch